AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An apparatus for automatic router configuration, comprising:

a connector configured to provide a connection port to a data circuit terminating equipment (DCE);

a multi-protocol transceiver coupled to the connector and configured to transmit and receive a plurality of protocol signals through the connector;

a CPU having a serial communication control function coupled to the multi-protocol transceiver to process data received from or for transmission to a communication network according to a communication environment ~~of a connection network~~; ~~and~~

a programmable logic device (PLD) coupled to sense a change in a connection state of the connector and to transfer information regarding the sensed change to the CPU; and

an interrupt request (IRQ) signal line, an acknowledgment (ACK) signal line, a chip select (CS) signal line, a protocol mode line, and a cable state sensing line, wherein the IRQ signal line, the ACK signal line, and the CS signal line are coupled between the PLD and the CPU, and the protocol mode line and the cable state sensing line are coupled between the PLD and the connector, and wherein the IRQ signal line and the ACK signal line each separately comprise a control line to carry information between the CPU and the PLD relating to a change

in the connection state of the connector, wherein the state is one of connection and disconnection.

2-4. (Canceled)

5. (Original) The apparatus of claim 1, wherein the PLD uses a pull-up resistor to sense a connection and disconnection state of the connector.

6. (Original) The apparatus of claim 1, wherein the PLD uses a pull-up resistor to determine a hardware protocol.

7. (Original) The apparatus of claim 1, further comprising a transient voltage suppressor (TVS) coupled to absorb an electric shock generated upon connecting or disconnecting the connector with a corresponding receptacle.

8. (Currently Amended) A method of automatically configuring a router, comprising:

sensing a change in a connection state of a connector between a router and a data circuit terminating equipment (DTE);

transferring sensing information to an internal CPU when a change in the connection state of the connector is sensed; and

initializing parts of the router and normalizing communication environments based on the sensing information, wherein transferring the sensing information to the internal CPU comprises:

transmitting an interrupt request (IRQ) signal to the CPU when the change in the connection state of the connector is sensed;

sending an acknowledgment signal from the CPU and requesting that a hardware protocol mode value be transmitted to the CPU; and

transmitting a protocol connection mode value to the CPU.

9. (Previously Presented) The method of claim 8, wherein sensing the change in the connection state of the connector comprises:

sensing a change of a connected or disconnected state of the connector; and

determining a hardware protocol when the state of the connector has been changed.

10. (Original) The method of claim 9, wherein the connected state is determined by a low logic state of a prescribed connection pin of the connector, and the disconnected state is determined by a high logic state of the prescribed connection pin of the connector.

11. (Original) The method of claim 9, wherein a programmable logic device (PLD) senses the change of state and transfers the sensed information to the CPU.

12. (Original) The method of claim 11, wherein the PLD uses a pull-up resistor to sense the connection and disconnection states of the connector.

13. (Original) The method of claim 11, wherein the PLD uses a pull-up resistor to determine a hardware protocol.

14. (Canceled)

15. (Currently Amended) The method of claim [[14]]8, wherein a programmable logic device sends the IRQ signal and the protocol connection mode value to the CPU.

16. (Previously Presented) A method of automatic router configuration, comprising:

sensing a connection and disconnection state of a connector configured to connect to a data circuit terminating equipment (DCE) by a programmable logic device (PLD);

determining a hardware protocol when a change in the state of the connector is sensed;

sending an interrupt request signal to a CPU to inform the CPU of the change in the state of the connector;

sending a response to the interrupt request signal from the CPU to the PLD to request the PLD to send a hardware protocol mode value to the CPU;

transmitting the hardware protocol mode value from the PLD to the CPU; and

initializing parts of the router and normalizing a communication environment based on information transmitted to the CPU.

17. (Original) The method of claim 16, wherein the hardware protocol is determined by at least one of the PLD and the CPU.

18. (Original) The method of claim 16, further comprising absorbing an electrical shock generated during connection and disconnection of the router.

19. (Previously Presented) The method of claim 16, wherein the router is configured to automatically sense a change in hardware protocol without switching off power to the router.

20. (Currently Amended) A data terminal equipment (DTE) device, comprising:

a connector configured to provide a connection port to a data circuit terminating equipment (DCE);

a multi-protocol processor coupled to the connector and configured to transmit and receive two or more protocol signals through the connector and to initialize parts of the DTE after a connection of the connector to the DCE while power to the DTE is maintained; and

a CPU having a serial communication control function coupled to the multi-protocol processor to process data received from or for transmission to a communication network according to a communication environment of a connection network,

wherein the multi-protocol processor includes a programmable logic device (PLD) coupled to receive connection state and hardware protocol information from the connector and transmit an interrupt request (IRQ) signal to the CPU in accordance with the state and protocol information, and the PLD to transmit a protocol mode value to the CPU after receiving an acknowledgment to the IRQ from the CPU.

21. (Original) The device of claim 20, wherein the multi-protocol processor comprises:

a multi-protocol transceiver to transmit and receive signals through the connector; and

a connection discrimination unit to initialize parts of the DTE based on the connection state of the connector.

22-23. (Canceled)

24. (Currently Amended) The device of claim [[22]]20, wherein a first pull-up resistor is used to determine the hardware protocol information, and wherein a second pull-up resistor is used to determine the connection state.

25. (Currently Amended) The device of claim [[22]]20, ~~wherein the connection discrimination unit further comprises~~ further comprising a transient voltage suppressor, coupled to the connector to absorb an electrical shock generated upon connecting the connector during operation of the DTE.

26. (Currently Amended) The device of claim [[22]]20, wherein the PLD is coupled to the connector using a protocol mode line and a state sensing line, and wherein the PLD is coupled to the CPU using an IRQ signal line, an ACK signal line, and a data line.

27. (Original) The device of claim 20, further comprising at least one resistor coupled between the connector and the multi-protocol processor to sense at least one of a state of a cable between the connector and the multi-protocol processor and a protocol mode.

28. (Currently Amended) The device of claim [[22]]20, wherein the PLD is coupled to pins or holes of the connector.

29. (Previously Presented) The apparatus of claim 1, wherein the PLD is coupled to pins or holes of the connector.

30. (Previously Presented) The method of claim 8, wherein the sensing information is automatically transferred to the internal CPU when the change in the connection state is sensed.

31. (Previously Presented) The method of claim 16, wherein the interrupt request message is automatically sent to the CPU when the PLD senses a change in the connection and disconnection state.